

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
31 December 2003 (31.12.2003)

PCT

(10) International Publication Number
WO 2004/002164 A3

(51) International Patent Classification⁷: H04N 7/30, 17/00

(21) International Application Number:

PCT/IB2003/002835

(22) International Filing Date: 16 June 2003 (16.06.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

02/07863

25 June 2002 (25.06.2002) FR

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(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

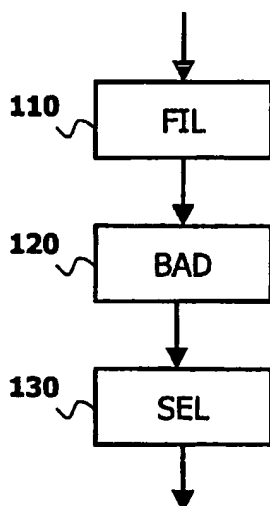
Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
12 February 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD OF DETECTING BLOCKING ARTEFACTS



(57) Abstract: The invention relates to a method of detecting blocking artefacts within a sequence of digital images. The method comprises a step of high-pass filtering a portion of a digital image, intended to supply at least one card of discontinuity pixels. It also comprises a step of detecting blocking artefacts, intended to detect a first type (p1) of elementary blocking artefact and a second type (p2) of elementary blocking artefact from the at least one card of discontinuity pixels. The method finally comprises a step of correcting the blocking artefacts in accordance with their type (p1, p2).

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INTERNATIONAL SEARCH REPORT

Internati plication No

PCT/IS 03/02835

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 H04N7/30 H04N17/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
 IPC 7 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 0 998 149 A (TELEDIFFUSION FSE ;FRANCE TELECOM (FR)) 3 May 2000 (2000-05-03) the whole document ---	1,8-10
A	EP 0 998 146 A (MATSUSHITA ELECTRONICS CORP) 3 May 2000 (2000-05-03) paragraphs '0090!-'0103! ---	1,8-10
A	WO 01 20912 A (KONINKL PHILIPS ELECTRONICS NV) 22 March 2001 (2001-03-22) the whole document ---	1,8-10
A	EP 1 168 824 A (EASTMAN KODAK CO) 2 January 2002 (2002-01-02) paragraphs '0023!-'0028! ---	1,8-10
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Patent family members are listed in annex.

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Date of the actual completion of the international search

5 December 2003

Date of mailing of the international search report

17/12/2003

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

Internal Application No

PCT/1803/02835

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	EP 1 202 577 A (KONINKL PHILIPS ELECTRONICS NV) 2 May 2002 (2002-05-02) the whole document ---	1,8-10
A	US 6 219 450 B1 (DE QUEIROZ RICARDO L) 17 April 2001 (2001-04-17) column 6, line 6-34 ---	1,8-10
A	FR 2 769 452 A (TELEDIFFUSION FSE) 9 April 1999 (1999-04-09) abstract ---	1,8-10
P,X	LESELLIER E ET AL: "ROBUST WAVELET-BASED ARBITRARY GRID DETECTION FOR MPEG" PROCEEDINGS OF THE SINGAPORE INTERNATIONAL CONFERENCE ON IMAGE PROCESSING, XX, XX, vol. 3, 22 September 2002 (2002-09-22), pages III-417-III-420, XP001149314 the whole document -----	1-10

INTERNATIONAL SEARCH REPORT

International Publication No

PCT/1503/02835

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0998149	A	03-05-2000	FR 2785116 A1 EP 0998149 A1	28-04-2000 03-05-2000
EP 0998146	A	03-05-2000	EP 0998146 A1 CN 1272286 T WO 9962264 A1 JP 2000050275 A	03-05-2000 01-11-2000 02-12-1999 18-02-2000
WO 0120912	A	22-03-2001	CN 1321400 T WO 0120912 A1 EP 1129579 A1 JP 2003509979 T US 6611295 B1	07-11-2001 22-03-2001 05-09-2001 11-03-2003 26-08-2003
EP 1168824	A	02-01-2002	US 6636645 B1 EP 1168824 A2 JP 2002101425 A	21-10-2003 02-01-2002 05-04-2002
EP 1202577	A	02-05-2002	CN 1348311 A EP 1202577 A1 JP 2002305747 A US 2002126761 A1	08-05-2002 02-05-2002 18-10-2002 12-09-2002
US 6219450	B1	17-04-2001	NONE	
FR 2769452	A	09-04-1999	FR 2769452 A1 CA 2306404 A1 DE 69804335 D1 DE 69804335 T2 EP 1020081 A1 WO 9918733 A1 JP 2001519630 T	09-04-1999 15-04-1999 25-04-2002 14-11-2002 19-07-2000 15-04-1999 23-10-2001